From inertia to velocity: cutting customary clutter in 802.3dv

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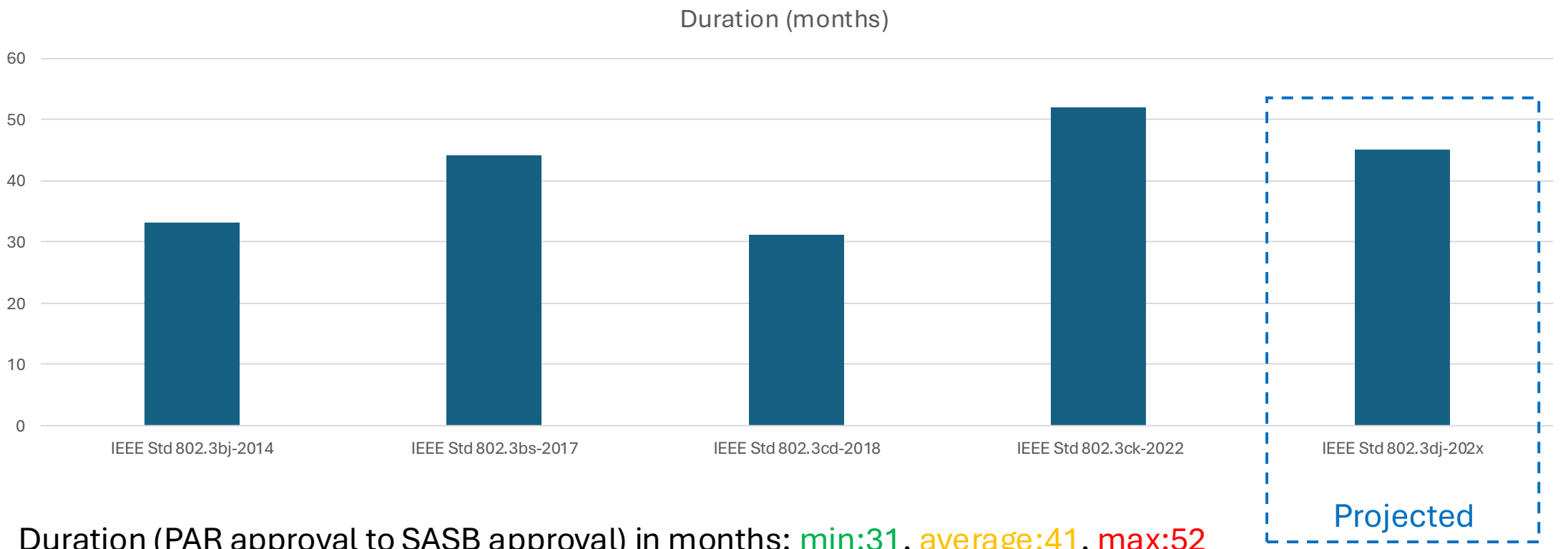
Supporters

- Eugene Opsasnick, Broadcom

Introduction

- P802.3dv (congratulations!) is a signaling-rate-doubling project
- It will require a lot of technical work and innovation
- Market demand for the technology is in the near term
- We need to move more quickly and efficiently than ever before
  - Reduce our timelines from previous projects
  - Time is a non-renewable resource; it should not be wasted

Previous Signaling-Rate-Doubling project durations

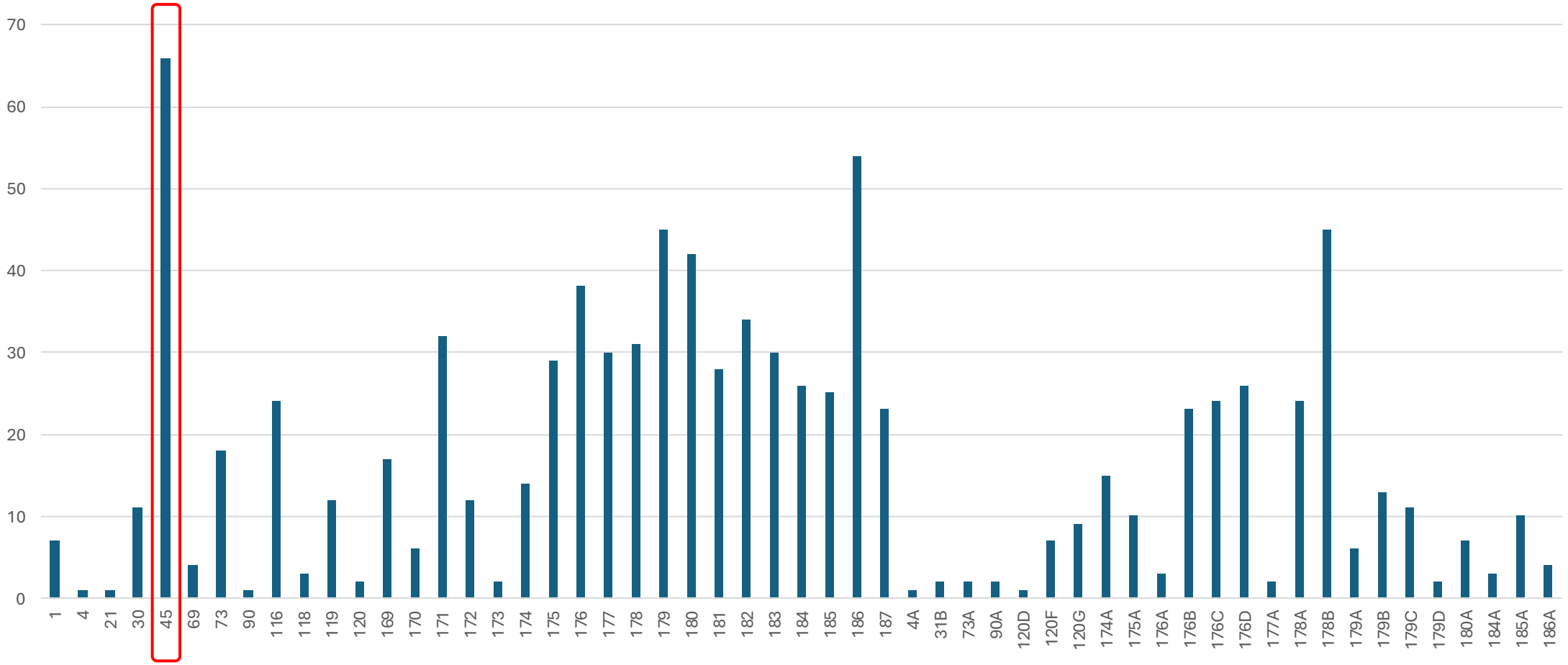


Duration (PAR approval to SASB approval) in months: min:31, average:41, max:52
P802.3dv PAR was approved in September 2026
Projected completion: min: mid 2029, average: early 2030, max: early 2031

How can we move faster?

- Previous projects included customary content carried forward by inertia from earlier projects: “this is how we do things”
- This content was mostly not discussed in meetings, so it wasn’t very visible
  - But it consumed editors’ and reviewers’ time
  - The importance of such content for readers should be questioned
- The more cargo we carry, the slower we move
  - Interoperability should be our primary goal
  - We should consider reducing recurring work that has no impact on interoperability across implementations

Page count per clause/annex in 802.3dj



Focus: Clause 45

- Clause 45 is very large
  - 66 pages in 802.3dj, and 484 pages in 802.3-2022
  - Editing and reviewing it is considerable work
  - Changes of management variables and options in other clauses result in “automatic” changes to MDIO registers
  - It gets updated up to the last draft in many projects
- This clause is skipped by most readers
  - MDIO registers are not implemented in practice in modern products (of this technology area)
  - Instead, management uses richer APIs that encapsulate the hardware implementation, making the address mappings irrelevant
  - Maintaining MDIO support is a futile effort

Alternative to clause 45

- In 802.3dj we included a “management” subclause at the end of each clause/annex that has management variables
  - Tables of management variables and their subclause references
  - Mapping to the optional MDIO register addresses
- Some information about registers is still found in clause 45
  - R/W vs RO, self clear, wraparound
  - These details may be useful guidance for API-based implementations too
- In 802.3dv, we should consider stopping additions and updates to clause 45
  - Keep the management variable tables, but without MDIO mapping
  - Add any necessary additional information, e.g. in a “details” column

Example – Clause 175 management variables

(from 802.3dj)

175.8 Management variables

PCS control and status variables intended to be accessible via a management system are listed in Table 175–6 and Table 175–7.

If the MDIO interface (see Clause 45) is implemented, PCS control and status variables shall be mapped to MDIO registers as shown in Table 175–6 and Table 175–7.

If the MDIO interface is not implemented, an alternate mechanism to access management variables shall be provided.

Table 175–6—PCS control variables and MDIO mapping

Control variable	Variable reference	MDIO register/bit number	MDIO register/bit reference
PCS_reset	175.2.6.2.2	3.0.15	45.2.3.1
loopback	175.4	3.0.14	45.2.3.1
tx_test_mode	175.2.4.11	3.42.3	45.2.3.19
FEC_bypass_indication_enable	175.2.5.3	3.800.1	45.2.3.60
FEC_degraded_SER_enable	175.2.5.3	3.800.2	45.2.3.60
FEC_degraded_SER_activate_threshold	175.2.5.3	3.806, 3.807	45.2.3.64
FEC_degraded_SER_deactivate_threshold	175.2.5.3	3.808, 3.809	45.2.3.65
FEC_degraded_SER_interval	175.2.5.3	3.810, 3.811	45.2.3.66

Variables shall be accessible to management. The specific management interface is beyond the scope of the standard.

These columns can go away. Information from clause 45 should be included in the table instead

Other cargo

- Additional content is often carried forward from previous projects, and may be considered ancillary to the main technical content, such as:
  - Clause 30 (management)
  - Laundry lists of “clauses that support…” (mainly in introduction and “feature” clauses)
  - Delay constraints (only relevant for PAUSE functionality)
  - PICS proforma
  - Others
- Should we keep supporting and maintaining this content?
  - The answer can be different for each one
  - Should be discussed early in the project

Summary

- To enable faster progress, it is proposed that P802.3dv:
  - Do not update clause 45.
  - Do not include MDIO register mapping.
  - Use management variable tables in each clause/annex that defines variables, as done in 802.3dj.
  - Include additional variable properties (such as R/W vs. RO) in these tables.
- We should consider retiring other customary content.
  - Future contributions may address that.

That’s all!

Questions?